Argonne NATIONAL LABORATORY

Center for Nanoscale Materials

New Research Center Will Aid Coming Nanorevolution

The Center for Nanoscale Materials will integrate nanoscale research with Argonne National Laboratory's existing capabilities in synchrotron radiation, neutron scattering and electron microscopy with new capabilities in nanolithography, nanomaterials characterization, nanosynthesis and processing. The center will be a national resource for the United States to foster new research capabilities in nanoscale synthesis and processing and will play a key role in the U.S. Department of Energy's participation in the interagency National Nanotechnology Initiative.

Focused, basic research in the nanoscale area will address the profound challenge of creating inexpensive, abundant and efficient alternatives that address the energy security of the nation.

Materials at the nanoscale behave differently from conventional materials, because traditional physics does not apply at these tiny dimensions. The principles of temperature, electricity and magnetism are completely different, which makes the basic scientific research to be conducted at the Center for Nanoscale Materials important before products and materials can be developed.

This facility will provide the building blocks of fundamental science so that researchers can learn what can be expected from science at the nanoscale. Facilities such as the Center for Nanoscale Materials will extend the frontiers of science and help maintain U.S. science primacy in the world.

The center's mission includes supporting basic research and the development of advanced instrumentation for the creation of novel materials that provide new insights at the nanoscale level. The challenges involve fabricating and exploring novel nanoscale materials and, ultimately, employing unique synthesis and characterization methods to control and tailor nanoscale phenomena. The facility is being built adjacent to the

The Center for Nanoscale Materials, under construction at Argonne, will be one of the nation's leading facilities to study the unique properties and behaviors of nano-sized materials.

Advanced Photon Source, to harness the X-rays, the most brilliant in the Western Hemisphere, in a nanoprobe beamline to provide unprecedented capabilities to study extremely small structures.

The Center for Nanoscale Materials is a joint partnership between the Department of Energy and the State of Illinois. The State of Illinois is providing $36 million to construct the 85,000-square foot building, and DOE is providing an additional $36 million to develop and build the facility's advanced instrumentation.

The Center for Nanoscale Materials is one of five centers being built at national laboratories across the country as part of DOE's Nanoscale Science Research Center program under the Office of Basic Energy Sciences. Together, the centers provide a gateway to interdisciplinary research at the nanoscale.

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Argonne National Laboratory is a U.S. Department of Energy laboratory managed by The University of Chicago